

## DUXBURY BEACH

### An Excellent Winter for Duxbury Beach

The winter season, November through March, is the most important period of the year for Duxbury Beach.

It is the time when most of the damage occurs, as witnessed by the great blizzard of 1978. Fortunately, the circumstances which made that storm so devastating, extremely high winds (90 mph) out of the east and northeast, and a spring tide (11'6") with the worst of the storm striking during the height of the tide, occurs only every 50 to 100 years.

What about the other more normal winters such as the one just past? They are most important and beneficial as they play a large part in the building or rebuilding of Duxbury Beach.

Wind erosion is the major problem for Duxbury

Beach. Unrestricted use of motor vehicles in the past destroyed the beach grass and other plant life in the dune areas. This vegetation, holding the dunes in place, was the major factor in their growth. Once the grass was killed, the sand quickly blew away. Remnants of these dunes are still visible on the bay side of the beach at low tide.

During the 1970s, intensive efforts by the town, Duxbury Beach Association and later by its successor, Duxbury Beach Reservation, Inc., to restrict vehicular traffic in the dune areas and the better enforcement of beach regulations, has largely controlled the cause of dune erosion.

For the past 10 years, heavy emphasis has also been placed on repairing the damage to the dunes. This second and separate effort is designed to assist the beach in rebuilding itself by erecting snow fencing and planting beach grass. One other element is required; the winter season with its storms and accompanying northeast and easterly winds. When these winds reach 20-30 mph, they pick the sand particles off the beach and low tide areas and carry them toward the dune areas. This appears a white haze a few inches over the surface of the beach.

When this sand goes through the snow fencing, the wind carrying it momentarily loses velocity and drops the sand behind the fence. There it is held in place till early spring by rains, damp weather, ice and snow. This sand must then be stabilized before the prevailing southwesterly winds of spring and summer dry it out and blow the captured sand back into the ocean. American beach grass is the ideal vehicle not only to hold the sand in place, but to capture more after it takes root. It eventually replaces the snow fencing in capturing sand.

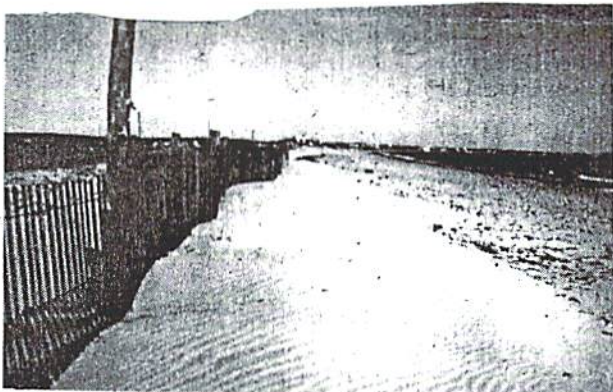
The rebuilding of the dunes is a multi-decade program. We have made good progress in the past 10 years but we still have a long way to go.

The winter of 1979-80 has to be considered one of the most successful in this rebuilding process. Winter storms were many, but not too violent. The winds never exceeded 40-50 mph and severe storms did not strike during periods of extremely high tides. Extensive snow fencing was in place and well maintained by beach conservation officers. All these elements contribute to a good winter for Duxbury Beach.

The next task will be to stabilize the captured sand between Duxbury Beach Park and the crossover at pole 27. The new dune restoration project north of the town parking lot has been successful. Started after the blizzard of '78, it has collected sand at an astonishing rate and is now beginning to develop its own dune structure. The main section of the beach from the parking lot to the crossover also did well this year with the possible exception of the last 1000 feet. This is true every year as this area always suffers from the lack of adequate sand.

The area south of the beach crossover at pole 27 also improved. This section and the area south to High Pines, is the one of greatest concern. All the dunes in this area have disappeared and we are having trouble establishing new ones. Two new techniques were tried last year, one was successful -- the other not. Two rows of snow fencing placed close together worked for better than one in collecting sand. The other experiment, depressions made in the stones to capture sand, did little or nothing. This technique has been successfully used by the Chinese in the Mongolian Desert, but doesn't seem to work in our environment.

Long-range programs will continue to rebuild Duxbury Beach. The process is slow, but with careful planning, consistent effort, experimentation and assistance from townspeople, the effort will be successful.



Sand collected at the new restoration area -- north of town parking lot.